

PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE INSTALLATION OF A NEW TRAFFIC CONTROL SIGNAL WITH FIREHOUSE PRE-EMPTION AND STREET LIGHTING AT THE RECONSTRUCTED INTERSECTION OF MD 5 (LEONARDTOWN ROAD) AND MD 471 (INDIAN BRIDGE ROAD) / FLAT IRON ROAD IN ST. MARY'S COUNTY. MD 5 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

1. NORMAL OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA FOUR-PHASE, FULLY-TRAFFIC ACTUATED MODE. THE MOVEMENTS ON MD 5 WILL OPERATE CONCURRENTLY AND THE MD 471/FLAT IRON ROAD APPROACHES WILL OPERATE CONCURRENTLY. INTERSECTION CONTROLLER WILL INTERCONNECT WITH EXISTING CONTROLLER AT THE INTERSECTION OF MD 5 AND MD 246.

2. SPECIAL OPERATION

THE INTERSECTION WILL OPERATE AS INDICATED ABOVE UNLESS THE OPTICOM DETECTOR EYE DETECTS AN APPROACHING EMERGENCY VEHICLE WHICH WILL PRE-EMPT THE TRAFFIC SIGNAL AND STOP ALL APPROACHES EXCEPT NORTHBOUND MD 5.

CONTROLLER REQUIREMENTS

INSTALL AN EIGHT-PHASE, FULLY-TRAFFIC ACTUATED, SOLID STATE DIGITAL CONTROLLER WITH TWO FOUR-CHANNEL RACK MOUNTED LOOP DETECTOR AMPLIFIERS, SYSTEM PACKAGE, OPTICOM CARD RACK, OPTICOM DISCRIMINATOR MODULE AND TELEMETRY MODULE, WITH ALL THE NECESSARY HARNESSSES, TO BE HOUSED IN A NEMA SIZE "6" BASE-MOUNTED CABINET.

SPECIAL NOTE

ALL UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC AND ARE NOT TO BE CONSIDERED COMPLETE BECAUSE THESE UTILITIES MAY BE MODIFIED PRIOR TO AND DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ALL UTILITY COMPANIES PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL EQUIPMENT WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY.

EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY THE SHA

| CAT.CODE NUMBER | SPEC. SECTION | QUANTITY | DESCRIPTION |
|--------------------|------------------|----------|---|
| 960021 | 814 | 6 EA. | 8 IN., ONE-WAY, THREE SECTION (R,Y,G) TRAFFIC SIGNAL HEAD WITH ADJUSTABLE BRACKET FOR MAST ARM MOUNTING AND TUNNEL VISORS |
| 960022 | 814 | 5 EA. | 12 IN., ONE-WAY, THREE SECTION (R,Y,G) TRAFFIC SIGNAL HEAD WITH ADJUSTABLE BRACKET FOR MAST ARM MOUNTING AND TUNNEL VISORS |
| 971017 | 816 | 1 EA. | EIGHT-PHASE, FULL-TRAFFIC-ACTUATED, SOLID STATE DIGITAL CONTROLLER WITH SYSTEM PACKAGE, HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET |
| 973023 | 813 | 279 S.F. | SHEET ALUMINUM SIGNS TO CONSIST OF: - 2 EA. R 1-2 SIGN (48 IN. X 48 IN. X 48 IN.)- GROUND MOUNT - 1 EA. R 6-(L) SIGN (36 IN. X 12 IN.)- GROUND MOUNT - 1 EA. R 6-(R) SIGN (36 IN. X 12 IN.)- GROUND MOUNT - 2 EA. D 3-2 SIGN (VARIABLE X 32 IN.)- MAST ARM MOUNT - 4 EA. D 3-2 SIGN (VARIABLE X 16 IN.)- MAST ARM MOUNT - 2 EA. R 5-1 SIGN (36 IN. X 36 IN.)- GROUND MOUNT - 2 EA. W 3-3 SIGN (48 IN. X 48 IN.) WITH "NEW" PANEL (30 IN. X 30 IN.) AND FLAGS - GROUND MOUNT - 2 EA. W 3-3 SIGN (48 IN. X 48 IN.) WITH "NEW" PANEL (30 IN. X 30 IN.), D-3(2) SIGN (72 IN. X 24 IN.) AND FLAGS- GROUND MOUNT - 1 EA. ASSOCIATED SHIELD ASSEMBLY "NORTH, MD 5, LEFT ARROW" (30 IN. X 51 IN.)- GROUND MOUNT - 1 EA. ASSOCIATED SHIELD ASSEMBLY "SOUTH, MD 5, RIGHT TURN ARROW" (30 IN. X 51 IN.)- GROUND MOUNT - 1 EA. ASSOCIATED SHIELD ASSEMBLY "SOUTH, MD 5, LEFT ARROW" (30 IN. X 51 IN.)- POLE MOUNT - 1 EA. ASSOCIATED SHIELD ASSEMBLY "NORTH, MD 5, RIGHT ARROW" (30 IN. X 51 IN.)- GROUND MOUNT - 1 EA. ASSOCIATED SHIELD ASSEMBLY "SOUTH, MD 5, UP ARROW" (30 IN. X 51 IN.)- GROUND MOUNT |
| 900000 | 807 | 2 EA. | FOUR-CHANNEL, TIME DELAY OUTPUT, LOOP DETECTOR AMPLIFIER |
| 900000 | 807 | 1 EA. | OPTICOM CARD RACK |
| 900000 | 807 | 1 EA. | OPTICOM DISCRIMINATOR MODULE |
| 900000 | 814 | 1 EA. | OPTICOM DETECTOR EYE |

EQUIPMENT LIST "B"

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR

| CAT.CODE NUMBER | SPEC. SECTION | QUANTITY | DESCRIPTION |
|--------------------|------------------|-----------|--|
| 203030 | 205 | 2 C.Y. | TEST PIT EXCAVATION |
| 585416 | XXXX | 90 L.F. | 24 IN. WHITE THERMOPLASTIC PREFORMED PAVEMENT MARKING |
| 801004 | 801 | 11 C.Y. | CONCRETE FOR SIGNAL FOUNDATION |
| 801106 | 812 | 242 L.F. | WOOD SIGN SUPPORTS 4 IN. X 6 IN. |
| 801711 | 813 | 65 S.F. | REMOVE EXISTING GROUND MOUNTED SIGNS AND SUPPORTS |
| 802501 | 810 | 330 L.F. | NO. 6 AWG STRANDED BARE COPPER GROUND WIRE |
| 805026 | 811 | 20 L.F. | 3 IN. ELECTRICAL CONDUIT-PVC RISER |
| 805150 | 805 | 70 L.F. | 3 IN. SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED |
| 805160 | 805 | 30 L.F. | 1 IN. LIQUID-TIGHT NON-METALLIC CONDUIT FOR DETECTOR SLEEVE |
| 810010 | 810 | 90 L.F. | ELECTRICAL CABLE 1-CONDUCTOR NO. 4 AWG |
| 811001 | 811 | 11 EA. | ELECTRICAL HANDHOLE |
| 813010 | 813 | 1 EA. | BAND SIGN TO SIGN SUPPORT |
| 813014 | 813 | 194 S.F. | INSTALL GROUND MOUNTED SIGN |
| 813015 | 813 | 74 S.F. | INSTALL OVERHEAD SIGN |
| 813022 | 813 | 5 S.F. | RELOCATE EXISTING GROUND MOUNTED SIGNS |
| 822001 | 810 | 1800 L.F. | 12-PAIR COMMUNICATION CABLE, JELLY FILLED (OVERHEAD) |
| 837001 | 804 | 3 EA. | GROUND RODS - 3/4 IN. X 10 FT. LENGTH |
| 838003 | 807 | 1 EA. | CONTROL AND DISTRIBUTION EQUIPMENT (120/240 V, 1 PHASE, 3 WIRE SYSTEM) |
| 860021 | 814 | 6 EA. | INSTALL 8 INCH 1 WAY 3 SECTION (R,Y,G) SIGNAL HEAD - MAST ARM MOUNT |
| 860022 | 814 | 5 EA. | INSTALL 12 INCH 1 WAY 3 SECTION (R,Y,G) SIGNAL HEAD - MAST ARM MOUNT |
| 861104 | 810 | 2000 L.F. | ELECTRICAL CABLE - 2 CONDUCTOR (ALUMINUM SHIELDED) |
| 861107 | 810 | 610 L.F. | ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG) |
| 861108 | 810 | 1350 L.F. | ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG) |
| 861116 | 810 | 440 L.F. | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 12 AWG) |
| 862101 | 810 | 1520 L.F. | LOOP WIRE ENCASED IN FLEXIBLE TUBING (NO. 14 AWG) |
| 862102 | 815 | 410 L.F. | SAW CUT FOR SIGNAL (LOOP DETECTOR) |
| 866104 | 818 | 2 EA. | 20 FT. LIGHTING ARM ON SIGNAL POLE |
| 871117 | 816 | 1 EA. | INSTALL CONTROLLER AND CABINET - BASE MOUNT |
| 800000 | 805 | 570 L.F. | 2 IN. SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED |
| 800000 | 805 | 190 L.F. | 3 IN. SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED |
| 800000 | 805 | 500 L.F. | 4 IN. SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED |
| 800000 | 805 | 60 L.F. | 4 IN. SCHEDULE 80 RIGID PVC CONDUIT-PUSHED |
| 800000 | 806 | 2 EA. | 250 WATT HPS VAPOR LUMINAIRE WITH PHOTO-CELL |
| 800000 | 810 | 120 L.F. | 4 CONDUCTOR OPTICOM DETECTOR CABLE |
| 800000 | 818 | 1 EA. | 27 FT. STEEL POLE WITH TWIN 50 FT. AND 70 FT. MAST ARMS |
| 800000 | 818 | 1 EA. | 27 FT. STEEL POLE WITH TWIN 50 FT. AND 60 FT. MAST ARMS |
| 800000 | 818 | 4 EA. | CUT, CLEAN, GALVANIZE AND CAP MAST ARM |
| 800000 | 819 | 2 EA. | BACK GUY FOR UTILITY POLE |

PROJECT CONTACTS

THE CONTACT PERSONS FOR DISTRICT #5 ARE AS FOLLOWS:


PAUL ARMSTRONG
DISTRICT ENGINEER
PHONE: (410) 841-5450
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ASSISTANT DISTRICT ENGINEER - MAINTENANCE
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RICHARD DAFF
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LARRY ELLIOT
ASSISTANT DISTRICT ENGINEER - TRAFFIC
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JOHN MAYS
ASSISTANT DISTRICT ENGINEER - UTILITIES
PHONE: (410) 841-5450

PHASE CHART

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) | (R) (Y) (G) |
| PHASE 2 + 6 | G | G | G | G | G | R | R | R | R | R | R |
| 2 + 6 CHANGE | Y | Y | Y | Y | Y | R | R | R | R | R | R |
| PHASE 4 + 8 | R | R | R | R | R | G | G | G | G | G | G |
| 4 + 8 CHANGE | R | R | R | R | R | Y | Y | Y | Y | Y | Y |
| FIREHOUSE | G | G | R | R | R | R | R | R | R | R | R |
| PRE-EMPTION | Y | Y | R | R | R | R | R | R | R | R | R |
| FLASHING OPERATION | FL Y | FL Y | FL Y | FL Y | FL Y | FL Y | FL Y | FL Y | FL Y | FL Y | FL Y |

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| REVISIONS | | APPROVALS | |  MARYLAND DOT - STATE HIGHWAY ADMINISTRATION <i>Office of Traffic & Safety</i> TRAFFIC ENGINEERING DESIGN DIVISION MD 5 (LEONARDTOWN ROAD) AT MD 471 (INDIAN BRIDGE ROAD)/FLAT IRON ROAD LOG MILE NO. 18000517.46 DATE / / | |
| | | ASST. DIVISION CHIEF, TEDD | | | |
| | | ASST. DISTRICT ENGINEER, TRAFFIC | | | |
| | | CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION | | | |
| | | DIRECTOR, OFFICE OF TRAFFIC & SAFETY | | | |
| THE WILSON T. BALLARD CO. CONSULTING ENGINEERS OWINGS MILLS, MARYLAND | | DRAWN BY: T. LUTZ | | F.A.P. NO. XXX-XXX-XXX | |
| | | CHECK BY: S. BURNETT | | S.H.A. NO. SM 7865176 | |
| | | SCALE: 3/4" = 1'-0" | | COUNTY ST. MARY'S | |
| | | PLAN SHEET NO. TS-3832-2 | | SHEET NO. 17 OF 19 | |

WIRING DIAGRAM

